Assignment 1

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Title: Execution of basic and advanced Unix Commands

Objective: Execute some basic and advance Unix commands on Linux/Unix operating system.

1. Change your password to a password you would like to use for the remainder of the semester.

```
student@admins-iMac documents % passwd
Changing password for student.
Old Password:
New Password:
Retype New Password:

################################# WARNING #################################
# This tool does not update the login keychain password.                 #
# To update it, run `security set-keychain-password` as the user in question, #
# or as root providing a path to such user's login keychain.             #
##########################################################################
```


2. Display the system's date.

```
[admins-iMac-2:~ student$ date
 Mon  Feb 5  02:11:36 IST 2024
admins-iMac-2:~ student$
```


3. Count the number of lines in the /etc/passwd file.

```
student@admins-iMac documents % wc -l /etc/passwd
     120 /etc/passwd
```


4. Find out who else is on the system.

```
128  /etc/passwd
student@admins-iMac documents % who
student   console   Feb  5 14:15
student   ttys000   Feb  5 14:41
```

5. Direct the output of the man pages for the date command to a file named mydate.

```
student@admins-iMac documents % man date > mydate
student@admins-iMac documents % cat mydate

DATE(1)                     BSD General Commands Manual                     DATE(1)

NAME
     date -- display or set date and time

SYNOPSIS
     date [-jRu] [-r seconds | filename] [-v [+|-]val[ymwdHMS]] ...
          [+output_fmt]
     date [-jnu] [[[mm]dd]HH]MM[[cc]yy][.ss]
     date [-jnRu] -f input_fmt new_date [+output_fmt]
     date [-d dst] [-t minutes_west]

DESCRIPTION
     When invoked without arguments, the date utility displays the current
     date and time.  Otherwise, depending on the options specified, date will
     set the date and time or print it in a user-defined way.

     The date utility displays the date and time read from the kernel clock.
     When used to set the date and time, both the kernel clock and the hard-
     ware clock are updated.

     Only the superuser may set the date, and if the system securelevel (see
     securelevel(7)) is greater than 1, the time may not be changed by more
     than 1 second.
```

6. Create a subdirectory called mydir.

```
student@admins-iMac documents % mkdir mydir
```

7. Move the file mydate into the new subdirectory.

```
student@admins-iMac documents % mv mydate mydir
```

8. Go to the subdirectory mydir and copy the file mydate to a new file called outdate

```
student@admins-iMac documents % cd documents
cd: no such file or directory: documents
student@admins-iMac documents % date
Mon Feb  5 14:46:10 IST 2024
student@admins-iMac documents % date > mydate
student@admins-iMac documents % cd mydir
student@admins-iMac mydir % touch outdate
student@admins-iMac mydir % cp mydate outdate
student@admins-iMac mydir % ls
mydate   outdate
```

9. List the contents of mydir.

```
student@admins-iMac mydir % ls
mydate   outdate
```

10. Do a long listing on the file outdate and note the permissions.

```
student@admins-iMac mydir % ls -l outdate
-rw-r--r--  1 student  staff  12418 Feb  5 14:46 outdate
```

11. Display the name of the current directory starting from the root.

```
student@admins-iMac mydir % pwd
/Users/student/documents/mydir
```

12. Move the files in the directory mydir back to your home directory.

```
student@admins-iMac documents % cd ..
student@admins-iMac ~ % cp * ../home
usage: cp [-R [-H | -L | -P]] [-fi | -n] [-apvXc] source_file target_file
       cp [-R [-H | -L | -P]] [-fi | -n] [-apvXc] source_file ... target_directory
```

13. Display the first 5 lines of mydate.

```
student@admins-iMac ~ % Head -5 mydir/mydate

DATE(1)                    BSD General Commands Manual                    DATE(1)

NAME
     date -- display or set date and time
```

14. Display the last 8 lines of mydate.

```
student@admins-iMac ~ % Tail -8 mydir/mydate
    The date utility is expected to be compatible with IEEE Std 1003.2
    (``POSIX.2''). The -d, -f, -j, -n, -r, -t, and -v options are all exten-
    sions to the standard.

HISTORY
    A date command appeared in Version 1 AT&T UNIX.

BSD                              May 7, 2015                              BSD
```

15. Remove the directory mydir.

```
student@admins-iMac ~ % rm -r mydir
```

16. Redirect the output of the long listing of files to a file named list.

```
student@admins-iMac ~ % ls -l > list
student@admins-iMac ~ % cat list
total 1352
-rw-r--r--    1 student  staff      63 Dec  1 10:11 #include<stdio.c
-rw-r--r--    1 student  staff       0 Jan 10  2023 1
drwx------@   3 student  staff      96 Aug  2  2022 Applications
-rwxr-xr-x    1 student  staff      75 Dec  6  2022 Arithmeticop.sh
drwxr-xr-x   10 student  staff     320 Jan 16  2023 Ayush_t
drwxr-xr-x    6 student  staff     192 Dec  2 15:21 CSAI_50
drwx------@   8 student  staff     256 Feb  1 17:55 Desktop
-rw-r--r--    1 student  staff       0 Dec 13  2022 Desktoplist
drwx------@  23 student  staff     736 Feb  5 14:46 Documents
drwx------+  50 student  staff    1600 Feb  2 10:52 Downloads
-rwxr-xr-x    1 student  staff     121 Dec  6  2022 EvenOdd.sh
-rwxr-xr-x    1 student  staff   50341 Nov 20 16:24 FCFSpage
-rw-r--r--@   1 student  staff     917 Nov 20 16:24 FCFSpage.c
drwxr-xr-x    3 student  staff      96 Nov 20 13:55 FCFSpage.dSYM
-rwxr-xr-x@   1 student  staff      89 Dec  6  2022 Factorial.sh
-rwxr-xr-x    1 student  staff   50432 Nov 20 16:26 LRU
-rw-r--r--@   1 student  staff    1896 Nov 20 16:25 LRU.c
-rwxr-xr-x    1 student  staff     480 Jan 25 10:43 Lab_2.sh
drwx------@  70 student  staff    2240 Jan 18 10:06 Library
drwxr-xr-x    6 student  staff     192 Jan 16  2023 Manasi
```

17. Select any 5 capitals of states in India and enter them in a file named capitals1. Choose 5 more capitals and enter them in a file named capitals2. Choose 5 more capitals and enter them in a file named capitals3. Concatenate all 3 files and redirect the output to a file named capitals.

```
student@admins-iMac ~ % echo "Maharashtra\nDelhi\nGujrat\nRajasthan\nKolkata" > capitals1
student@admins-iMac ~ % echo "kerala\nUttarpradesh\nMadhyapradesh\nBihar\nKarnataka" > capitals2
student@admins-iMac ~ % echo "Kashmir\nAssam\nGoa\nHariyana\nPunjab" > capitals3
student@admins-iMac ~ % cat capitals1 capitals2 capitals3 > capitals
```

18. Concatenate the file capitals2 at the end of file capitals.

```
student@admins-iMac ~ % cat capitals2 >> capitals
```

19. Give read and write permissions to all users for the file capitals.

```
student@admins-iMac ~ % chmod -rwx capitals
```

20. Give read permissions only to the owner of the file capitals. Open the file, make some changes and try to save it. What happens ?

```
student@admins-iMac ~ % chmod u-wx capitals
student@admins-iMac ~ % cat capitals
cat: capitals: Permission denied
```

21. Create an alias to concatenate the 3 files capitals1, capitals2, capitals3 and redirect the output to a file named capitals. Activate the alias and make it run.

```
student@admins-iMac ~ % cat capitals1 capitals2 capitals3
Maharashtra
Delhi
Gujrat
Rajasthan
Kolkata
kerala
Uttarpradesh
Madhyapradesh
Bihar
Karnataka
Kashmir
Assam
Goa
Hariyana
Punjab
student@admins-iMac ~ % cat capitals1 capitals2 capitals3 > capitals
zsh: permission denied: capitals
```

22. Find out the number of times the string "the" appears in the file mydate.

```
student@admins-iMac ~ % cat > mydate
the operating system found the computer is windows
student@admins-iMac ~ % grep -o "the" mydate | wc -l
       2
```

23. Find out the line numbers on which the string "date" exists in mydate.

```
student@admins-iMac ~ % cat > mydate
this is the story of a king which is dated long back
student@admins-iMac ~ % grep -n "dated" mydate
1:this is the story of a king which is dated long back
```

24. Print all lines of mydate except those that have the letter "i" in them.

```
student@admins-iMac ~ % cat > mydate
there was a place
student@admins-iMac ~ % grep -v "i" mydate
there was a place
```

25. List the words of 4 letters from the file mydate.

```
student@admins-iMac ~ % grep -E '^.{4}$' words | wc -w
grep: words: No such file or directory
       0
student@admins-iMac ~ % grep -E '^.{4}$' mydate | wc -w
       0
```

26. List 5 states in north east India in a file mystates. List their corresponding capitals in a file mycapitals. Use the paste command to join the 2 files.

```
student@admins-iMac ~ % echo "assam\nmizoram\nmeghalaya\nsikkim\nnagaland" > mystate
student@admins-iMac ~ % echo "guwahati\nshilong\naizwal\ngangatok\nkohima" > mycapitals
student@admins-iMac ~ % paste mystate mycapitals > mystate1
student@admins-iMac ~ % cat mystate1
assam   guwahati
mizoram shilong
meghalaya       aizwal
sikkim  gangatok
nagaland        kohima
```

27. Use the cut command to print the 1 st and 3 rd columns of the /etc/passwd file for all students in this class.

```
student@admins-iMac ~ % cut -d: -f 1,3 /etc/passwd
##
# User Database
#
# Note that this file is consulted directly only when the system is running
# in single-user mode.  At other times this information is provided by
# Open Directory.
#
# See the opendirectoryd(8) man page for additional information about
# Open Directory.
##
nobody:-2
root:0
daemon:1
_uucp:4
_taskgated:13
_networkd:24
_installassistant:25
_lp:26
_postfix:27
_scsd:31
_ces:32
_appstore:33
_mcxalr:54
_appleevents:55
_geod:56
_devdocs:59
_sandbox:60
_mdnsresponder:65
_ard:67
_www:70
_eppc:71
_cvs:72
_svn:73
_mysql:74
_sshd:75
_qtss:76
_cyrus:77
_mailman:78
_appserver:79
_clamav:82
_amavisd:83
_jabber:84
_appowner:87
_windowserver:88
_spotlight:89
_tokend:91
_securityagent:92
_calendar:93
_teamsserver:94
_update_sharing:95
_installer:96
_atsserver:97
_ftp:98
_unknown:99
_softwareupdate:200
_coreaudiod:202
_screensaver:203
_locationd:205
_trustevaluationagent:208
_timezone:210
_lda:211
_cvmsroot:212
_usbmuxd:213
_dovecot:214
_dpaudio:215
_postgres:216
_krbtgt:217
_kadmin_admin:218
_kadmin_changepw:219
_devicemgr:220
_webauthserver:221
_netbios:222
_warmd:224
_dovenull:227
_netstatistics:228
_avbdeviced:229
_krb_krbtgt:230
```

28. Count the number of people logged in and also trap the users in a file using the tee command.

```
student@admins-iMac ~ % who |ctee usercount |wc -l
zsh: command not found: ctee
        0
student@admins-iMac ~ % who | tee usercount |wc -l
        2
student@admins-iMac ~ % cut -: -f/etc/passwd | tee_users_list
zsh: command not found: tee_users_list
cut: illegal option -- :
usage: cut -b list [-n] [file ...]
        cut -c list [file ...]
        cut -f list [-s] [-d delim] [file ...]
```

29. Convert the contents of mystates into uppercase.

```
student@admins-iMac ~ % tr a-z A-Z < mydate
THIS IS THE PALACE OF KING
```

30. Create any two files & display the common values between them.

```
student@admins-iMac ~ % echo "Orange\nApple\nMango\nPear" > fruits1
student@admins-iMac ~ % echo "Kiwi\nBanana\nMango\nPear" > fruits2
student@admins-iMac ~ % comm -12 fruits1 fruits2
Pear
```